

# **Notice of Allowability**

Application No.

10/072,869

Examiner

Robert Sellers

Applicant(s)

SASAKI ET AL.

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment after Final rejection filed May 10, 2004 which has not been entered.
2. ☒ The allowed claim(s) is/are 1,2,4-10,12-15,17,19 and 20.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Void date: 05/26/2004 TCOLE1  
05/26/2004 TCOLE1 00000004 194880 10072869  
01 FC:1252 330.00 CR

## **Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 504.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

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Robert Sellers  
Primary Examiner  
Art Unit: 1712

05/26/2004 10072869  
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1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
2. An extension of time under 37 CFR 1.136(a) is required in order to make an examiner's amendment which places this application in condition for allowance. During a telephone conversation conducted on May 24, 2004, L. Raul Tamayo requested an extension of time for ONE MONTH(S) and authorized the Director to charge Deposit Account No. 19-4880 the required fee of \$330 for this extension and authorized the following examiner's amendment. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Claim 1 (currently amended): A cationically polymerizable liquid composition comprising:

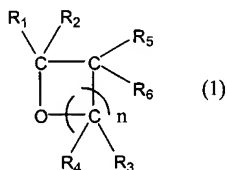
a cationically polymerizable mixture (A) comprising:

- a monofunctional monomer (A-1) having in the molecule only one cyclic ether structure represented by formula (1) below, wherein n is 1;
- a polyfunctional monomer (A-2) having in the molecule at least two cyclic ether structures represented by formula (1) below, wherein n is 0, and A-2 is an epoxidized product of a block copolymer produced by anionic polymerization of an ethylene compound and a diene compound; and
- a latent cationic polymerization initiator (A-3); and

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a solid resin (B) that is a tackifier, is compatible with the above-mentioned mixture (A) at room temperature, and has a softening point of at least 40 °C, and is selected from the group consisting of a rosin resin, a modified rosin resin, a hydrogenated rosin resin, a terpene resin, a terpene phenol resin, an aromatic modified terpene resin, a C<sub>5</sub> or C<sub>9</sub> petroleum resin or a hydrogenated derivative thereof, and a chroman resin;

the composition having a viscosity at 25 °C of 20 Pa-sec or below,



wherein,

$n$  denotes 0, 1, or 2, and  $R_1$  to  $R_6$  independently denote hydrogen atoms or hydrocarbon groups, which may have a substituent, and

the complex modulus of elasticity ( $G^*$ ) and the loss tangent ( $\tan \delta$ ) at 25 °C of the polymer obtained by cationic polymerization satisfy the following conditions,

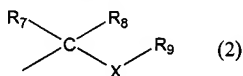
$$G^* > 100,000 \text{ (measurement frequency: 0.1 Hz),}$$

$$G^* < 4,000,000 \text{ (measurement frequency: 1 Hz),}$$

$$G^* > 2,000,000 \text{ (measurement frequency: 100 Hz), and}$$

$$\tan \delta \text{ is at least 0.8 (measurement frequency: 100 Hz).}$$

Claim 2 (previously presented): The cationically polymerizable liquid composition according to Claim 1, wherein at least one of  $R_1$  to  $R_6$  in formula (1) is a substituent represented by formula (2) below,



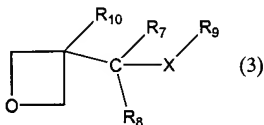
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wherein,

R<sub>7</sub> and R<sub>8</sub> denote hydrogen atoms or alkyl groups, which may have a substituent, R<sub>9</sub> is a straight- or branched-chain alkyl group that has at least 4 carbon atoms, and X denotes oxygen or -CH<sub>2</sub>-.

Claim 3 (canceled).

Claim 4 (previously presented): The cationically polymerizable liquid composition according to Claim 1, wherein the monofunctional monomer (A-1) is represented by formula (3) below,



wherein,

R<sub>7</sub>, R<sub>8</sub> and R<sub>10</sub> denote hydrogen atoms or C<sub>1</sub> to C<sub>10</sub> alkyl groups, which may have a substituent, R<sub>9</sub> denotes a straight- or branched-chain C<sub>4</sub> to C<sub>24</sub> alkyl group, and X denotes an oxygen atom.

Claim 5 (previously presented): The cationically polymerizable liquid composition according to Claim 1, wherein the polyfunctional monomer (A-2) is an epoxy resin containing at least two epoxy groups.

Claim 6 (previously presented): The cationically polymerizable liquid composition according to Claim 1 wherein the polyfunctional monomer (A-2) contains at least two alicyclic epoxy groups.

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Claim 7 (previously presented): The cationically polymerizable liquid composition according to Claim 1, wherein the polyfunctional monomer (A-2) contains at least two oxetanyl groups.

Claim 8 (previously presented): The cationically polymerizable liquid composition according to Claim 1, wherein the polyfunctional monomer (A-2) is 3,4-epoxycyclohexylmethyl-3',4'-epoxycyclohexanecarboxylate.

Claim 9 (previously presented): The cationically polymerizable liquid composition according to Claim 1, wherein the cationic polymerization initiator (A-3) is photo-latent or thermo-latent.

Claim 10 (previously presented): The cationically polymerizable liquid composition according to Claim 1, wherein the solid resin (B) is a hydrogenated petroleum resin and/or a hydrogenated rosin resin.

Claim 11 (canceled).

Claim 12 (previously presented): The cationically polymerizable liquid composition according to Claim 1, wherein the component A-2 is present at 5 to 50 wt% of the total amount of component A-1 plus component A-2.

Claim 13 (previously presented): The cationically polymerizable liquid composition according to Claim 6, wherein the polyfunctional monomer having at least two alicyclic epoxy groups (A-2) is present at 1 to 30 wt% of the total amount of component A-1 plus component A-2.

Claim 14 (previously presented): The cationically polymerizable liquid composition according to Claim 1, wherein the latent cationic polymerization initiator (A-3) is present at 0.01 to 5 wt% of the total amount of component A-1 plus component A-2.

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Claim 15 (previously presented): The cationically polymerizable liquid composition according to Claim 1, wherein the solid resin (B) is present at 10 to 300 parts by weight relative to 100 parts by weight of the cationically polymerizable mixture (A).

Claim 16 (canceled).

Claim 17 (previously presented): The cationically polymerizable liquid composition according to Claim 1, wherein the complex modulus of elasticity ( $G^*$ ) at 100 °C of the polymer obtained by cationic polymerization satisfies the following condition:

$$G^* > 100,000 \text{ (measurement frequency: 0.1 Hz).}$$

Claim 18 (canceled).

Claim 19 (previously presented): The cationically polymerizable liquid composition according to Claim 1, wherein the glass transition temperature of the polymer obtained by cationic polymerization is 0 °C or below.

Claim 20 (currently amended): A tacky polymer obtained by cationic polymerization of a cationically polymerizable liquid composition comprising:

a cationically polymerizable mixture (A) comprising:

a monofunctional monomer (A-1) having in the molecule only one cyclic ether structure represented by formula (1) below, wherein n is 1;

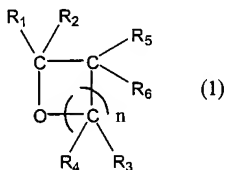
a polyfunctional monomer (A-2) having in the molecule at least two cyclic ether structures represented by formula (1) below, wherein n is 0, and A-2 is an epoxidized product of a block copolymer produced by anionic polymerization of an ethylene compound and a diene compound; and

a latent cationic polymerization initiator (A-3); and

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a solid resin (B) that is a tackifier, is compatible with the above-mentioned mixture (A) at room temperature, and has a softening point of at least 40 °C, and is selected from the group consisting of a rosin resin, a modified rosin resin, a hydrogenated rosin resin, a terpene resin, a terpene phenol resin, an aromatic modified terpene resin, a C<sub>5</sub> or C<sub>9</sub> petroleum resin or a hydrogenated derivative thereof, and a chroman resin;

the composition having a viscosity at 25 °C of 20 Pa-sec or below,



wherein,

~~n denotes 0, 1, or 2, and~~ R<sub>1</sub> to R<sub>6</sub> independently denote hydrogen atoms or hydrocarbon groups, which may have a substituent, and

the complex modulus of elasticity (G\*) and the loss tangent (Tan δ) at 25 °C of the polymer obtained by cationic polymerization satisfy the following conditions,

$$G^* > 100,000 \text{ (measurement frequency: 0.1 Hz),}$$

$$G^* < 4,000,000 \text{ (measurement frequency: 1 Hz),}$$

$$G^* > 2,000,000 \text{ (measurement frequency: 100 Hz), and}$$

$$\text{Tan } \delta \text{ is at least 0.8 (measurement frequency: 100 Hz).}$$

Claim 21 (canceled).

The following is an examiner's statement of reasons for allowance:

3. The amendment after Final rejection filed May 10, 2004 has not been entered since claims labeled as "previously amended" are improper. The proper label of "previously presented" has been substituted in the Examiner's amendment hereinabove.
4. Claim 11 is directed to the cationically polymerizable liquid composition of claim 1 further comprising a polyol. According to MPEP § 821.04, "if applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims which depend from or otherwise include all the limitations of the allowable product will be rejoined." Claim 11 is not a process claim and therefore is not eligible to be rejoined.
5. Newly amended independent claims 1 and 20 have been limited to a mono-oxetane as monofunctional monomer (A-1) and an epoxidized ethylene-diene block copolymer as polyfunctional monomer (A-2). PCT Publication No. WO 00/63272 and Japanese Patent Nos. 11-140279, 11-152441, 10-158581, 5-171083, 5-171084, 7-62082 and 7-53711 do not recite this more specific combination.
6. The closest prior art is European Patent No. 848,294 which shows monomers (A-1) and (A-2) within the newly confined language without an example of the pentroleum resin disclosed on page 13, line 49. Table 1 on page 25 and Table 2 on page 28 compares Example 1 representative of the claims with Comparative Example 1 reflective of the European patent which mirrors Example 1 except for the absence of the Regalite 1090 hydrogenated petroleum resin.



7. No distinction is seen in the viscoelastic characteristics exhibited in Table 2. However, the order of magnitude difference in probe tack between the examples (Table 3) is unexpected. This is a specialized aspect of tack based on the adhesive properties for very short contact times (Probe Tack Experiment document) which is not acknowledged in any of the prior art containing tackifiers, or the petroleum resin of the European patent.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

(571) 272-1093 (Fax no. (703) 872-9306)  
Monday to Friday from 9:30 to 6:00 EST

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Robert Sellers  
Primary Examiner  
Art Unit 1712